BTEC IT Unit 4 Programming Model Answer Teacher Notes.

Introduction.

The program solutions included here are based on the Pearson authorised assignment brief for the event management system and follows this requirement brief:

Vocational Scenario or Context	You are a junior employee at a small software development company. Your company recently visited a local college and delivered a guest lecture. The college were pleased with the outcome of the visit and have asked your company to judge an upcoming tournament. The college will be running a tournament for students to compete in a series of events for prizes. • Participants may enter the tournament as individuals or as part of a team • It is expected that will be 4 teams each with 5 members and there will be 20 spaces for individual competitors • Each team or individual will complete 5 events • Each event will be defined as a team or individual event • The events will vary in type, from sporting to academic challenges • Individuals and teams will be awarded points according to their rank within each event • The points awarded for each event are as yet undecided and the college are willing to hear any suggestions you may have • Also the college would like to include the possibility of entering for one event only You have been asked to design and develop a computer program to manage the scoring system for the tournament.

All programs have been designed to run in a console window, and has not used any GUI driven Event based programming with either windows forms (for the C# and VB.NET solution) or tkinter (for python).

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Overall Design.

All programs follow the same basic overall design.

Data Structures and Variables.

4 single dimensional arrays are used to store the 4 teams of 5 players.

A 2D array is used to work out the scores for the teams.

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Program Flowchart.

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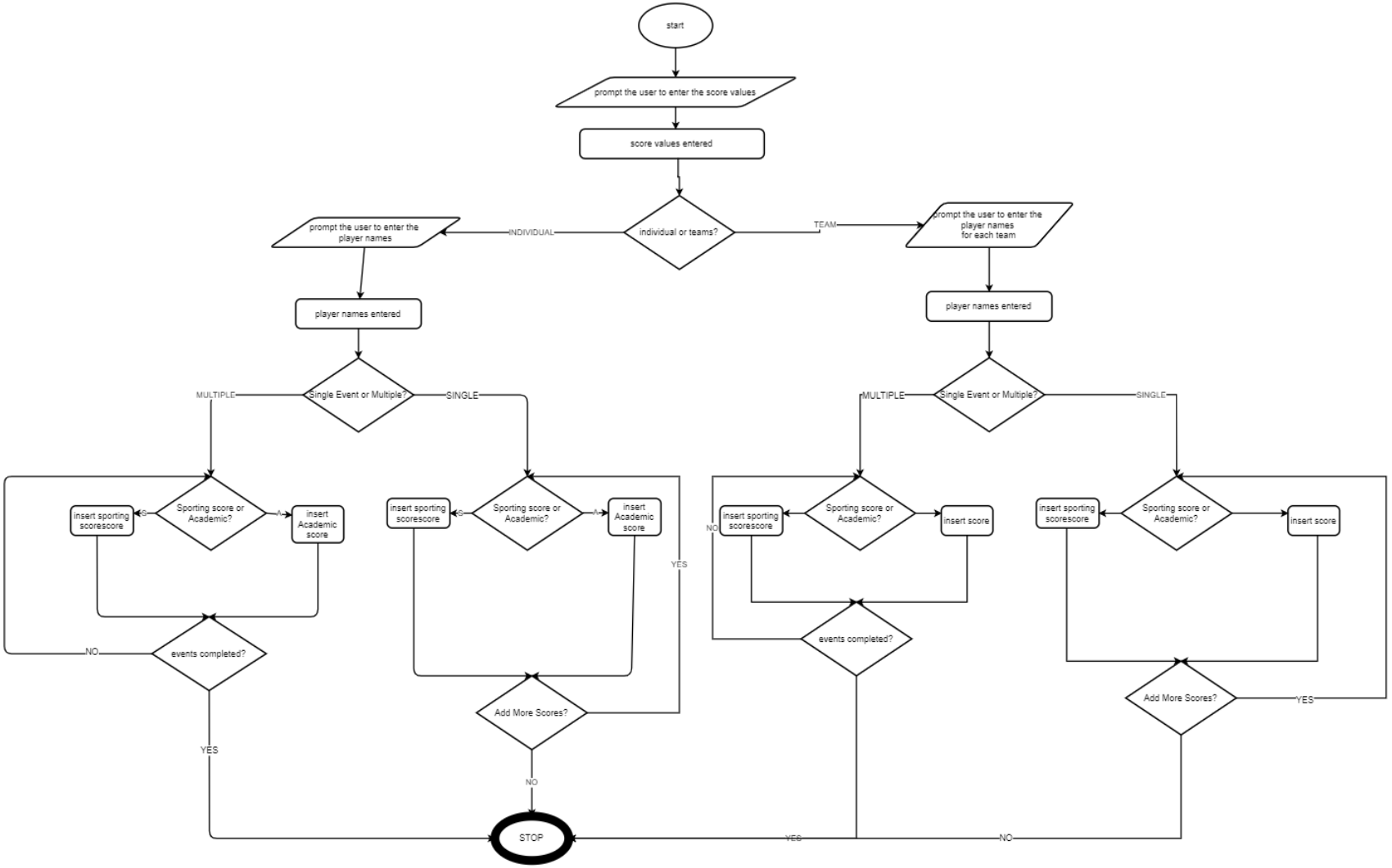

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Design rationale

The assignment brief has been left purposefully vague. The idea is that there are enough blanks that the programmer must keep going back to the original stakeholder for clarification on exactly what the client wishes to see. Such conversations will need to be recorded in the meeting minutes for ongoing interviews and final signoff.

The program is a console based application.

As one of the requirements is that the clients do not know the value of the individual scores, one of the requirements is to allow the user to set each one of these individually. The scores cannot be adjusted once they have been set.

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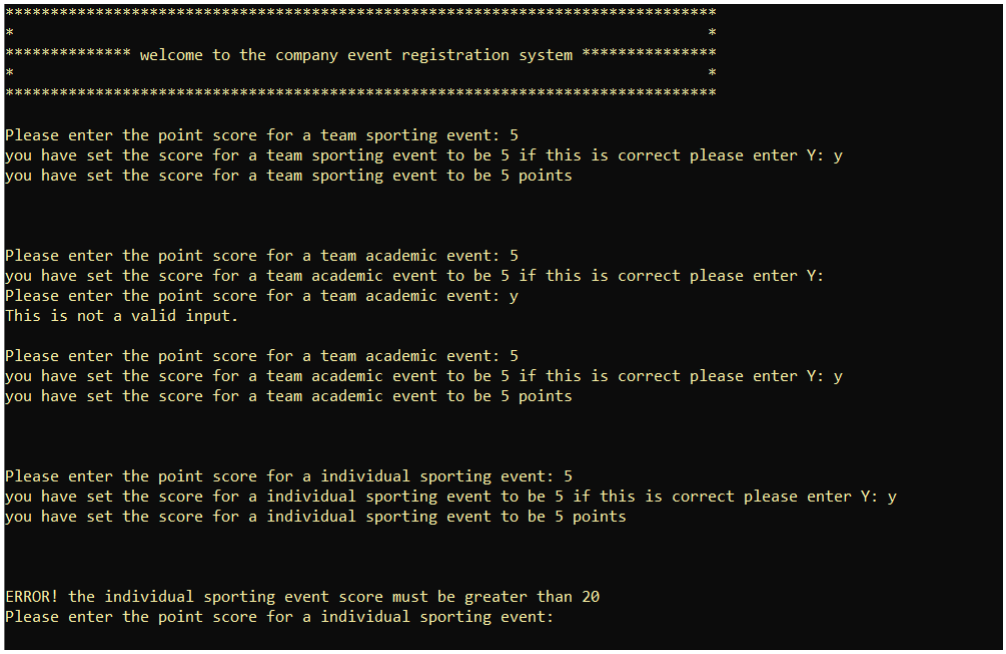
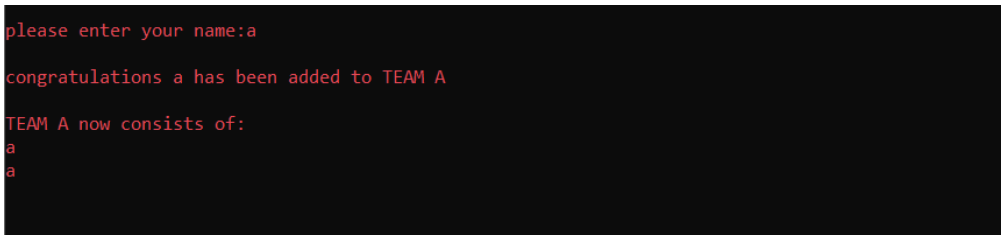
Technical Information

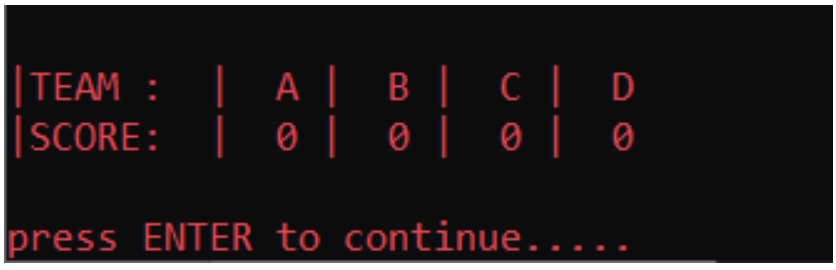
Please note: All screen captures have been taken from a C# console program and so are in colour as C# allows the programmer to change the font properties of the output window. The Python code will not allow for changing colour of the output window, and so is in black and white. The text, layout and logical flow is identical to the Python program.


********** welcome to the company event registration system **********
Please enter the point score for a team sporting event: 5
you have set the score for a team sporting event to be 5 if this is correct please enter Y: y
you have set the score for a team sporting event to be 5 points
Please enter the point score for a team academic event: 5
you have set the score for a team academic event to be 5 if this is correct please enter Y:
Please enter the point score for a team academic event: y
This is not a valid input.
Please enter the point score for a team academic event: 5
you have set the score for a team academic event to be 5 if this is correct please enter Y: y
you have set the score for a team academic event to be 5 points
Please enter the point score for a individual sporting event: 5
you have set the score for a individual sporting event to be 5 if this is correct please enter Y: y
you have set the score for a individual sporting event to be 5 points
ERROR! the individual sporting event score must be greater than 20
Please enter the point score for a individual sporting event:

Main screen for setting up the academic and sporting scores, with user input validation.



Adding individuals to teams. This is not part of the original requirement specification.



The four teams and their initial scores

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Functions

Name	Parameters	Return	Purpose
RunProgram	None	None	Starts the program, sets up the initial colours and the initial menus.
RunIndividualEvents	None	None	Code for the individual events
RunSingleIndividualEvent	String eventType	None	The code for one event based on the supplied type

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Assumptions Made

All of the following assumptions have been made, as there has been no interview with a key stakeholder.

It is envisaged that one of the students in the class will act as a key stakeholder and will then have a clear idea of what the requirements are for the individual program.

The idea of clients only having a vague idea of what they want and need ongoing discussions with either a developer or analyst to either clarify what is actually to be developer, or to be presented with a range of options of what is programmatically feasible is a common real world scenario which has been replicated here by a purposefully vague requirement brief.

The assumptions made are:

- The program is a console based application
- There is no main menu
- The first operation is to set the team and individual academic and sporting score values

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Python Specific notes

It is not possible to change the console colour or clear the console in Python, so this code has been omitted.

The program does not make traditional use of lists, rather attempts to make use of lists as arrays. Each list, whether single or 2 dimensional, is preloaded with either the number 0 for integers or empty strings for string arrays. Each array element is then accessed via it's row and column co-

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